

UNITED STATES PATENT APPLICATION

For

DISPLAY RACK AND HOOK COMBINATION

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Attorney Matter No. 450001-63

## DISPLAY RACK AND HOOK COMBINATION

### **BACKGROUND OF THE INVENTION**

**[0001]** *Field of the Invention:* The invention relates to display systems; and more particularly, to display racks and hook combinations including racks having display hooks mounted thereon on which products are suspended.

### **RELATED ART**

**[0002]** Display racks that are set up in retail stores or the like at the point of sale are well known. Such racks generally are self standing units having a back wall or the like with a plurality of spaced holes or openings into which one end of a support hook is inserted. The hook then extends outwardly from the wall, having an elongated portion for extending through an opening in a display card or the like. A product to be displayed is mounted on the card and, in this manner, a plurality of such products may be displayed to the public at the point of sale. Of course, any suitable product having means allowing it to be suspended from such hooks may be so mounted.

**[0003]** In U.S. Patent No. 4,671,417, there is disclosed a hook and display panel combination for suspending products therefrom. In this patent, the hook has a gripping finger that extends into a slot on a corrugated cardboard panel. There is no bottom support to the face place of the hook to the panel. Thus, when a product suspended from such a hook is removed therefrom, the hook may be dislodged from the panel.

**[0004]** In U.S. Patent No. 5,464,103, there is disclosed a display rack having a back wall with a plurality of spaced openings therein. A plurality of spaced outwardly extending protrusions are associated with these spaced openings. These spaced protrusions provide added support to the support members 67 when the gripping fingers 73 are inserted into openings 27. Although this arrangement is quite effective, this rack uses a hook that could be dislodged when a product is removed from suspension from the hook.

**[0005]** U.S. Patent No. 5,502,277 discloses a display hook and rack combination wherein a display rack has a plurality of spaced openings into which support fingers of a hook may be inserted. The rack has spaced protrusions thereon associated with the

spaced openings and engaging the face plate of the hook providing support and stabilization to the hook so that it cannot be easily dislodged when a product, suspended on the hook, is removed therefrom.

**[0006]** It can be seen from the foregoing patents that firm support and stabilization of display hooks, which carry products being displayed thereon, is a serious problem in the display rack art. There is a need for display racks which can support a variety of different shaped hooks thereon in a firm and stabilized manner.

### **INVENTION SUMMARY**

**[0007]** It is an object of this invention to provide a display rack and hook combination that supports a variety of different shaped hooks in a firm and stabilized manner.

**[0008]** These and other objects of the invention are preferably accomplished by providing a display rack and hook combination comprising a rack adapted to be hung on a pre-existing wire frame. The rack has a plurality of spaced slots therein in horizontally and vertically aligned rows. Support fixtures having products suspended therefrom may be inserted into these slots. The support fixtures are of various shapes and have face plates configured to snap into the slots and hold the fixtures in a firm and stabilized manner so products can be hung therefrom.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0009]** Fig. 1 is a perspective view illustrating how the display rack is hung from a pre-existing wire frame;

**[0010]** Fig. 2 is a front elevational view of the display rack alone of Fig. 1;

**[0011]** Fig. 3 is a rear elevational view of the rack of Fig. 2;

**[0012]** Fig. 4 is a view taken along lines 4-4 of Fig. 2;

**[0013]** Fig. 5 is a detailed view of a portion of the rack of Fig. 4 taken along line 5;

**[0014]** Fig. 6 is a view taken along lines 6-6 of Fig. 2;

**[0015]** Fig. 7 is a detailed view taken along line 7 of Fig. 6;

**[0016]** Fig. 8 is an elevational view, partly in section, of a hanging clip used to mount the rack of Fig. 2 to the pre-existing wire frame of Fig. 1;

**[0017]** Fig. 9 is a view taken along lines 9-9 of Fig. 8, the rack omitted for convenience of illustration;

**[0018]** Fig. 10 is a side elevational view of one type of hook that can be inserted into the slots of the rack of Figs. 1-3;

**[0019]** Fig. 11 is a view taken along lines 11-11 of Fig. 10;

**[0020]** Fig. 12 is a view taken along lines 12-12 of Fig. 10;

**[0021]** Fig. 13 is a view taken along lines 13-13 of Fig. 10;

**[0022]** Fig. 14 is a view taken along lines 14-14 of Fig. 10;

**[0023]** Fig. 15 is a view taken along lines 15-15 of Fig. 10;

**[0024]** Fig. 16 is a perspective view illustrating how the hook of Figs. 10-15 snaps into a slot of the rack of Figs. 1-3;

**[0025]** Fig. 17 is a side view of a portion of the rack of Fig. 16 showing how the hook snaps into the slot;

**[0026]** Fig. 18 is a side elevational view of another type of hook that can be inserted into the slots of the rack of Figs. 1-3;

**[0027]** Fig. 19 is a view taken along lines 19-19 of Fig. 18;

**[0028]** Fig. 20 is a view taken along lines 20-20 of Fig. 18;

**[0029]** Fig. 21 is a view taken along lines 21-21 of Fig. 18;

**[0030]** Fig. 22 is a view taken along lines 22-22 of Fig. 18;

**[0031]** Fig. 23 is a view taken along lines 23-23 of Fig. 18;

**[0032]** Fig. 24 is a perspective view illustrating how the hook of Figs 18-23 snaps into a slot of the rack of Figs.1-3;

**[0033]** Fig. 25 is a side view of a portion of the rack of Fig. 24 showing how the hook snaps into the slot.

**[0034]** Fig. 26 is an elevational view of a bracket for holding a header in the rack of Fig. 1;

**[0035]** Fig. 27 is a side view of the bracket of Fig. 26 illustrating how the header of Fig. 1, shown in dotted lines, is attached thereto;

**[0036]** Fig. 28 is an elevational view of the bracket of Fig. 26 mounted into the rack of Fig. 1;

**[0037]** Fig. 29 is a front elevational view of a bracket for mounting a basket to the rack of Fig. 1;

**[0038]** Fig. 30 is a side view of the bracket of Fig. 29;

**[0039]** Fig. 31 is a top plan view of the bracket of Figs. 29 and 30;

**[0040]** Fig. 32 is a rear elevational view of the bracket of Figs. 29 to 31;

**[0041]** Fig. 33 is a bottom plan view of the bracket of Fig. 32;

**[0042]** Fig. 34 is a view taken along lines 34-34 of Fig. 30;

**[0043]** Fig. 35 is an exploded view illustrating the mounting of a basket to the bracket of Figs. 29 to 34, the bracket being mounted onto the rack of Fig. 1;

**[0044]** Fig. 36 is a side view, partly in section, illustrating the attachment of the basket of Fig. 35 to the bracket of Figs. 29 to 34;

**[0045]** Fig. 37 is a perspective view of a stand used to support the rack of Fig. 1;

**[0046]** Fig. 38 is a perspective view of the rack of Fig. 1 mounted on the stand of Fig. 37;

**[0047]** Fig. 39 is a rear elevational view of the stand of Fig. 37;

**[0048]** Fig. 40 is a plan view of the blank used to form the lower portion of the stand of Fig. 37;

**[0049]** Fig. 41 is a perspective view of the blank of Fig. 40 in partially folded condition;

**[0050]** Fig. 42 is a plan view of the blank used to form the upper portion of the stand of Fig. 37; and

**[0051]** Fig. 43 is a perspective view of the blank of Fig. 42 in partially folded condition.

**[0052] Detailed Description of the Preferred Embodiments**

**[0053]** Referring now to Fig. 1 of the drawing, a pre-existing self supporting wire frame 10 is shown that may be disposed in a retail establishment or the like. A display rack 11 is about to be mounted on to frame 10. The rack 11 alone is shown in Fig. 2. This is the front view of rack 11; the rear view of rack 11 is shown in Fig. 3.

**[0054]** As seen in Figs. 2, 4, and 5, rack 11 is comprised of a plurality of horizontally extending spaced ribs 12 intersected by a plurality of vertically extending spaced ribs 13. These ribs 12, 13 are enclosed by a peripheral frame 14. These ribs 12, 13 form a plurality of spaced slots 15 for receiving article bearing hooks therein, as will be discussed. On opposite sides of rack 11, that is, on the right and left sides of rack 11 as seen in Fig. 2, a plurality of elongated slots 16, longer and narrower than slots 15, are provided. This may be accomplished by narrowing the spacing between left and right side frame portions 17, 18, respectively, and the respective adjacent vertical rib 13 as seen in Fig. 2. In addition, the horizontal ribs 12 adjacent each left and right side frame portions 17, 18 that intersect with the vertical ribs 13 do not extend across the open slots 16 at every other location thus forming an elongated slot 16 as shown. Slots 16 may be used to support shelving, as will be discussed further hereinbelow.

**[0055]** As seen in Fig. 6, each rib 12 has an enlarged portion 18 where it intersects with vertical rib 13. The rear view of slots 15 and 16 is shown in Fig. 3.

**[0056]** Referring now to Figs. 8 and 9, a clip 19 is shown which is used to hang the rack 11 of Fig. 2 on to the pre-existing wire frame 10 of Fig. 1. Clip 19 has a first generally U-shaped portion 20 with a lip 21 at the terminal end of clip 19, which bears against one of the horizontal ribs 12, the curved portion 22 extending into adjacent slot 15, then curving back out to an integral elongated portion 23 overlying two adjacent spaced horizontally extending ribs 12, as shown. U-shaped portion 20 also has a lip portion 24 which bears against the inner surface 25 of one of the ribs 12 as shown. Elongated portion 23 curves inwardly forming a curved portion 26 (see also Fig. 9), then to a hook portion 27 (Fig. 8). Hook portion 27 has an extension portion 28 forming an opening therebetween for hooking on to a wire member 29 of the wire frame 10 of Fig. 1. In this manner, clips 19 can be pushed into aligned slots 15 at spaced locations on rack 11 firmly and securely holding the rack 11 on to the wire frame 10.

**[0057]** Referring now to Fig. 10, one type of a display hook that may be used to hang items or articles on rack 11 is shown. Thus, hook 30 has an elongated support member 31, which, as seen in Fig. 11, may be generally trapezoidally-shaped in cross-section with rounded side edges. Support member 14 is angled slightly upwardly from the horizontal and terminates in an upturned portion 32 at its outer end. Support member 14 is cantilevered outwardly from the front surface 33 of a broader face plate 34 which has a substantially planar rear surface 35. Face plate 34 has a V-shaped slot 36 (see Figs. 12 and 13) at its lower end forming two spaced prongs 37, 38. Each prong 37, 38 has a rearwardly extending snap tab portion, (portions 39, 40, respectively) adapted to snap into aligned slots 15 of rack 11 as will be discussed. A hook portion 41 (see particularly Figs. 13 and 15) is provided at the upper end of face plate 34 for snapping into an aligned slot 15 of rack 11 as will be discussed.

**[0058]** This is shown in Figs. 16 and 17. Hook 30 is mounted to rack 11 between two adjacent spaced vertical ribs 13 (Fig. 16), the width of face plate 34 being generally related to the spacing between adjacent ribs 13. As seen in Fig. 17, hook portion 41 of face plate 34 enters slot 15 and engages the enlarged portion 18 of one of the horizontally extending ribs 12. The lower end of face plate 34 or prongs 37, 38 snap fit into a slot 15, one slot removed from the slot 15 into which hook portion 41 extends. The prongs 37, 38 engage the vertical ribs 13 and, along with hook portion 41, hold the face plate 34 in a firm position secured to rack 11. Thus, the face plate 34 spans 3 adjacent aligned slots 15 as seen in Fig. 16 and can quickly and easily be removed therefrom. The snap tab portion 39, 40 of prongs 37, 38 snap into locking engagement with adjacent ribs 13.

**[0059]** Another embodiment of a hook that may be used in accordance with the teachings of the invention is shown in Figs. 18 through 20. Thus, hook 42 has an elongated support member 43, which, as seen in Fig. 19, may be generally planar with a central generally trapezoidally-shaped portion 44 in cross-section with rounded side edges. Support member 43 is angled slightly upwardly from the horizontal and terminates in an upturned portion 45 at its outer end. Support member 42 is cantilevered outwardly from the front surface 46 of a broader face plate 47 which has a substantially planar rear surface 48. Face plate 47 has a V-shaped slot 49 (see Figs.

**[0060]** This is shown in Figs. 24 and 25. Hook 42 is mounted to rack 11 between two adjacent spaced vertical ribs 13 (Fig. 24), the width of face plate 34 being generally related to the spacing between adjacent ribs 13. As seen in Fig. 25, hook portion 54 of face plate 47 enters slot 15 and engages the enlarged portion 18 of one of the horizontally extending ribs 12. The lower end of face plate 47 or prongs 52, 53 snap fit into a slot 15, one slot removed from the slot 15 into which hook portion 41 extends. The prongs 52, 53 engage the vertical ribs 13 and, along with hook portion 54, hold the face plate 47 in a firm position secured to rack 11. Thus, the face plate 47 spans 3 adjacent aligned slots 15 as seen in Fig. 24 and can quickly and easily removed therefrom. The snap tab portion 52, 53 of prongs 50, 51 snap into locking engagement with adjacent ribs 13.

**[0062]** As seen in Fig. 26, a bracket 100 is provided to hold a header 101 (see Fig. 1) with indicia thereon, to the rack 11. Bracket 100 includes a lower rib 102 (Fig. 26), an upper rib 103, and a front rib 104 interconnecting ribs 102, 103. As seen in Fig. 26, upper rib 103 extends outwardly further than lower rib 102. A rear flange portion 105 is also interconnected to ribs 102, 103 and cutout sections 106, 107 and 108 may be provided in bracket 100.

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have a curved U-shape extending from flange portion 105 and terminating in an extension portion 115. A first groove 116<sup>1</sup> may be provided on flange portion 105 on one side of hook portion 110 and a second groove 117 on the other end.

**[0064]** As seen in Fig. 1, a pair of such brackets 100 are provided, each snapping into position in slots 116 (see also Fig. 2) in rack 11. This is clearly shown in Fig. 28 wherein hook portion 109 enters slot 116 and rib 12 snaps into groove 113. Nub 111 overlies and abuts against an adjacent lower rib 12 whereas the same rib 12 snaps into hook portion 110 abutting against extension portion 115. Lower nub 112 abuts against an adjacent lower rib 12. Header 101, shown in dotted lines in Fig. 27, is now placed between brackets 100. Pointed extensions 118 are provided on each bracket 100 which snap into the header 101 to hold the same in fixed position.

**[0065]** As shown in Figs. 29 through 36, a basket holder 119 (Fig. 35) and basket 120 may be provided for rack 11. Basket holder 119 comprises a bracket 121 (Fig. 29) generally trapezoidal in configuration, having an extension portion 122 at its smaller end 123 with a V-shaped slot 124 therein. As seen in Fig. 35, bracket 121 also has a second extension portion 125 with a V-shaped slot 126 therein extending from the smaller end 123 of bracket 121 to extension portion 122.

**[0066]** As seen in Fig. 30, a hook portion 127 extends from the rear of bracket 121 below the upper end 128 thereof. A pair of locking members 129, 132 also extend from the rear of bracket 121 below hook portion 127 (see also Figs. 32 and 34). As seen in Fig. 31, each locking member 129 has a locking tooth 130, 131, respectively, extending outwardly on each side thereof (see also Fig. 33).

**[0067]** Basket holder 119 snaps into aligned openings 15 in rack 11 as seen in Fig. 36. Hook 127 snaps under rib 12 whereas locking members 129, 132 enter a slot 15, spaced one slot away from where hook 127 enters, and snaps into position therein, the locking teeth 130, 131 locking rib 15 between teeth 129, 132 and flanges 135, 136 (Fig. 33) spaced therefrom.

**[0068]** Basket 120, Fig. 35, has a front basket portion 137 and a rear integral flap portion 138. Flap portion 138 has a V-shaped slot 139 and snaps over the portion 140 (Fig. 30) of basket holder 119 interconnecting bracket 121 and hook portion 127. Thus,

basket 120 is firmly held in position to basket holder 119 and objects can be placed into the interior 141 (Fig. 35) of basket 120.

**[0069]** Referring now to Fig. 37 of the drawing, a stand or support 200 for mounting the rack 11 so as to display a plurality of objects thereon is shown. The support 200 is comprised of a bottom portion 201 secured to a top portion 202. Bottom portion 201 includes a front wall 203 that is generally rectangular sloping inwardly from the bottom to top thereof. Bottom portion 201 includes integral spaced side walls 204, 205 (see Fig. 38) and generally planar rectangular rear walls 206 and 213 (Fig. 39) which taper inwardly and upwardly from the bottom to top thereof similar to front wall 203.

**[0070]** As seen in Figs. 37 and 38, and as will be discussed further hereinbelow, bottom portion 201 is formed of two abutting sections that meet at line 207.

**[0071]** Top portion 202 connects to bottom portion 201 at line 208 and is comprised of an upper generally square-shaped wall 209 sloping outwardly and downwardly from the top thereof to an inwardly extending generally rectangular wall 210. A part of side walls 211, 212 (Figs 37 and 38) interconnect front walls 209, 210 to aforementioned rear wall 213 (Fig. 39).

**[0072]** As seen in Fig. 37, the intersection of front wall 209 with each side wall 211, 212 is comprised of a row of spaced outwardly extending flaps 214 which may be cut out of wall 209, as well be discussed.

**[0073]** The stand or support 200 provides a firm base for mounting rack thereon as seen in Fig. 38. The flaps 214 enter the spaced slots 15 (Fig. 1) along the right and left sides of rack 11. Hooks 30 can then be mounted on rack 11, as previously discussed, and display packages 215 can be mounted on hooks 30. The center of gravity of support 200 is such that a substantial amount of weight via packages 215 can be placed on it without tipping over.

**[0074]** As seen in Fig. 40, bottom portion 201 is formed from a blank, which may be of cardboard or the like, having front wall 203, which may have an elongated slot 216 for carrying the assembled bottom portion 201. Wall 203 is connected at fold line 217 to a midpanel 218 connected via fold line 219 to rear wall 206. Rear wall 206 is connected

via fold line 220 to a base support panel 221. Panel 221 is connected via fold lines 222, 223, respectively, to flaps 224, 225, respectively.

**[0075]** Each flap 224, 225 has a slotted tab (tabs 226, 227, respectively) for reasons to be discussed.

**[0076]** Each side panels 204, 205 is each comprised of two parts. A first part 228 is connected, via fold line 229, to front wall 203. A second part 230 is connected via fold line 231 to first part 204. A cut-out slot 232 is formed in part 230. A pair of slots 233, 234 are provided at opposite ends of fold line 231. Side panel 205 is a mirror image of side panel 204 and further description is unnecessary. Panels 204, 205 are generally triangular and part 230 is generally rectangular.

**[0077]** Each side panel 211, 212 is comprised of two parts. For example, side panel 211 has a first part 235 connected via fold line 236 to panel 206. A second part 237 is connected via fold line 238 to first part 235. Part 235 is generally triangular and part 237 is generally rectangular.

**[0078]** A cut-out slot 239 is formed in part 237 and a pair of slots 240, 241 are provided at each end of fold line 238. An extension flap 242 is provided on second part 237, connected thereto via fold line 244 terminating in an enlarged head 243. Side panel 212 is a mirror image of panel 211.

**[0079]** The blank of Fig. 40 is folded, as shown in fig. 41, so that parts 237, 230 abut against each other and bottom panel 221 is folded to form a base. Slots 226, 227 engage slots 233 and heads 243 enter slots 232, 239. The final assembly of the blank of Fig. 40 is shown in Figs. 37 and 38.

**[0080]** Top portion 202 is connected via fold line 244 to panel 210 which in turn is connected via fold line 245 to a flap 246. Side panels 211, 212 are each formed of 3 sections, a first section 247 hinged to a second section 248, along fold line 249, and a third portion 250 hinged to second portion 248 along fold line 251. Portions 247, 248, 250 each have a slot thereon, as slots 252, 253, 254, respectively. Side 212 is a mirror image of side 211 and further discussion is deemed unnecessary. Tabs 214 are cut-out of panel 202 along its intersection with portions 211, 212.

**[0081]** As seen in Fig. 43, panel 246 is folded inwardly along fold line 245 as is panel 210 along fold line 244.

**[0082]** Second section 248 is folded along the cut-out tabs 214. Sections 247, 248, 250 are folded inwardly.

**[0083]** As seen in Figs. 37 and 38, when assembled, lower portion 201 has a pair of slots (at line 208 in Figs. 37 and 38) formed on each side of panel 218, the downwardly extending sections 247, 248, 250 of sides 211, 212 of top portion 202 being inserted down through these slots at lines 208 forming the assembled structure in Figs. 37 and 38. Thus, a firm solid support is provided for rack 11.

**[0084]** Although a particular embodiment of the invention is disclosed, variations thereof may occur to an artisan and the scope of the invention should only be limited by the scope of the appended claims.

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**[0081]** As seen in Fig. 43, panel 246 is folded inwardly along fold line 245 as is panel 210 along fold line 244.

**[0082]** Second section 248 is folded along the cut-out tabs 214. Sections 247, 248, 250 are folded inwardly.

**[0083]** As seen in Figs. 37 and 38, when assembled, lower portion 201 has a pair of slots (at line 208 in Figs. 37 and 38) formed on each side of panel 218, the downwardly extending sections 247, 248, 250 of sides 211, 212 of top portion 202 being inserted down through these slots at lines 208 forming the assembled structure in Figs. 37 and 38. Thus, a firm solid support is provided for rack 11.

**[0084]** Although a particular embodiment of the invention is disclosed, variations thereof may occur to an artisan and the scope of the invention should only be limited by the scope of the appended claims.

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